

National Grid Savings

The largest “income” for the wind turbine is the savings realized by offsetting electricity costs from National Grid. The following sections describe the current costs of electricity from National Grid costs and the costs that would be incurred with a wind turbine in place. The difference results in a direct savings to the Town.

National Grid Rate Structure

The National Grid rate structure is made up of four parts –an electric supply charge per kilowatt hour (kWh), other kWh charges, peak power demand charges per kilowatt (kW) and fixed charges. The monthly bill includes charges from each of the four parts. There are several different retail rate structures, each with different rates for all parts except for the supply charge. The applicable rate structure for a given account is determined by the amount of electricity used. For example, the rate structure for the Legion Way pumping station is G-02 and rate structure for the High School is G-32. National Grid rates are updated periodically, as required, and must be approved by the RI Public Utilities Commission. The table below outlines the G-02 and G-32 rates for 2008 and the proposed rates for 2009. The following sections describe each element of the rate structure. Note that municipalities and businesses must pay the National Grid rate for all elements except for the Electric Supply charge which can be negotiated with a third party supplier. Barrington has negotiated the rates shown with a third party electric supplier.

Monthly Charges	Actual Rates as of 7/15/08		Proposed Rates as of 1/1/09		Comment
	G-02	G-32	G-02	G-32	
Electric Supply (\$ per kWh)					
National Grid	\$0.12400		\$0.09500		
or Constellation NewEnergy	\$0.10230		\$0.10230		Barrington School Rate - thru 2010
or Constellation NewEnergy	\$0.05963		\$0.05963		Barrington Municipal Rate - thru 2008
or GEXA Energy	\$0.09463		\$0.09463		Barrington Municipal Rate - 2009 thru 2011
Other kWh Charges (\$ per kWh)					
Transition Charge	\$0.00322	\$0.00322	\$0.00235	\$0.00235	
Transmission Adjustment Factor	\$0.00541	\$0.00541	\$0.01064	\$0.01064	
Distribution Charge	\$0.00777	\$0.00889	\$0.00777	\$0.00889	
Load Management Adjustment	\$0.00230	\$0.00230	\$0.00230	\$0.00230	
Demand Charges (\$ per kW)					
Transmission Charge	\$1.40	\$1.27	\$1.40	\$1.27	
Distribution Charge	\$3.22	\$2.00	\$3.22	\$2.00	
Fixed Charges					
Customer Charge	\$103.41	\$236.43	\$103.41	\$236.43	
Gross Earnings Tax	4.167%	4.167%	4.167%	4.167%	Applied to all charges

Total kWh Charges (less tax)	\$0.14270	\$0.14382	\$0.11806	\$0.11918
Total kWh Charges (with tax)	\$0.14865	\$0.14981	\$0.12298	\$0.12415

Electric Supply Charges

The Electric Supply Charge is to cover the cost of the electricity production. The rate is established in terms of \$ per KWh. The charge is calculated by multiplying total energy (in kWh) used that month times the rate. Unlike all the other charges, municipalities and

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businesses can negotiate with suppliers other than National Grid for the supply of electricity. National Grid collects these charges as part of their bill and, in turn, pays the supplier. Barrington has negotiated with third parties to supply electricity to the Town. Separate rates and effective periods have been negotiated. In general, these rates are a little less than the National Grid rate at the time that they are negotiated, but unlike National Grid, the rates are fixed for the term of the agreement.

Other kWh Charges

The Other kWh Charges are to cover the National Grid costs associated with the supply of the electricity to the end user. There are currently four separate charges each with a separate rate expressed in terms of \$ per kWh. The charges are calculated by multiplying the total energy (in kWh) used in the month times each of the rates.

Demand Charges

The Demand Charges are to cover the National Grid costs associated with meeting the demand of the peak power usage. There are currently two separate charges each with a separate rate expressed in terms of \$ per kW. The charges are calculated by multiplying the peak power demand (in kW) in the month times each of the rates.

Fixed Charges

The Fixed Charges are to cover the National Grid costs associated with the administration of the accounts. They include a fixed monthly Customer Charge, independent of the amount of energy and the peak power used. Also included is a Gross Earning Tax that is applied to value of the total bill, including the monthly Customer Charge

Wind Turbine Impact

In general, a wind turbine will only offset the kWh charges from National Grid. The Demand Charges and Fixed Charges will still be there to cover the costs associated the peak demand and the administration of the account.

The wind turbine is connected directly to the load “behind the meter” so that it meets the demand when it can, resulting in no demand from National Grid. When the demand is greater than what the turbine can supply, electricity is supplied FROM the Grid. When the demand is less than what the turbine can supply, excess electricity is supplied TO the Grid. Electric meters measure the net flow. With current “net metering” laws, the customer is charged only for the net demand over a monthly billing cycle. If the wind turbine produces more total energy than the total demand in a given month, all kWh charges will be offset. In the past, the net excess energy (not used directly by the load) was sold to the National Grid at wholesale rates, typically well below the total National Grid kWh rates. However, new legislation that goes into effect on January 1, 2009 (known as “virtual net metering”) is much more attractive. It provides a credit to municipalities for excess generation. The credit is at the National Grid rates and can be applied to another customer account.

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The chart below shows how the net savings will be calculated. The example shows the typical usage for the Legion Way pumping station and compares the charges with and without the wind turbine in place at the proposed 2009 rates. Note that:

1. It is based upon the assumption that the wind turbine would directly offset all the 16,500 kWh required by the pumping station and that the excess energy returned to the Grid would be 100,500 kWh.
2. The General Service Rates change from G-02 to G-32 (as required by the new legislation – based upon the size of the turbine).
3. The Legion Way bill would be reduced by \$2,055. The \$11,746 credit would be applied to the High School bill in the next month.
4. The total net savings would be \$13,801 from a wind turbine producing 117,000 kWh, an effective savings rate of about 12¢ per kWh.

	Typical Monthly Legion Way Bill without turbine		Typical Monthly Legion Way Bill with turbine producing 117,000 kWh		
National Grid Peak Demand (kW)	121		121		
National Grid Energy (kWh)	16,500		16,500		
Wind Turbine Energy Used (kWh)			100,500		
Wind Turbine Energy Excess (kWh)			G-32		
General Service Rate	G-02				
	Rate	Charges (\$)	Rate	Charges (\$)	Credits (\$)
Electric Supply Charges (\$ per kWh)					
National Grid	\$0.09500		\$0.09500		\$9,547.50
GEXA Energy	\$0.09463	\$1,561.40	\$0.09463	\$0.00	
Other kWh Charges (\$ per kWh)					
Transition Charge	\$0.00235	\$38.78	\$0.00235	\$0.00	\$236.18
Transmission Adjustment Factor	\$0.01064	\$175.56	\$0.01064	\$0.00	\$1,069.32
Distribution Charge	\$0.00777	\$128.21	\$0.00889	\$0.00	\$893.45
Load Management Adjustment	\$0.00230	\$37.95	\$0.00230	\$0.00	
Fixed Charges (\$ per kW)					
Transmission Charge	\$1.40000	\$169.40	\$1.27000	\$153.67	
Distribution Charge	\$3.22000	\$389.62	\$2.00000	\$242.00	
Other Charges					
Customer Charge	\$103.41	\$103.41	\$236.43	\$236.43	
Gross Earnings Tax	4.167%	\$108.52	4.167%	\$26.34	
Totals		\$2,712.84		\$658.44	\$11,746.44
Net Savings (realized the following month)					\$13,800.84
Effective Savings Rate (\$/kWh)					\$0.11796

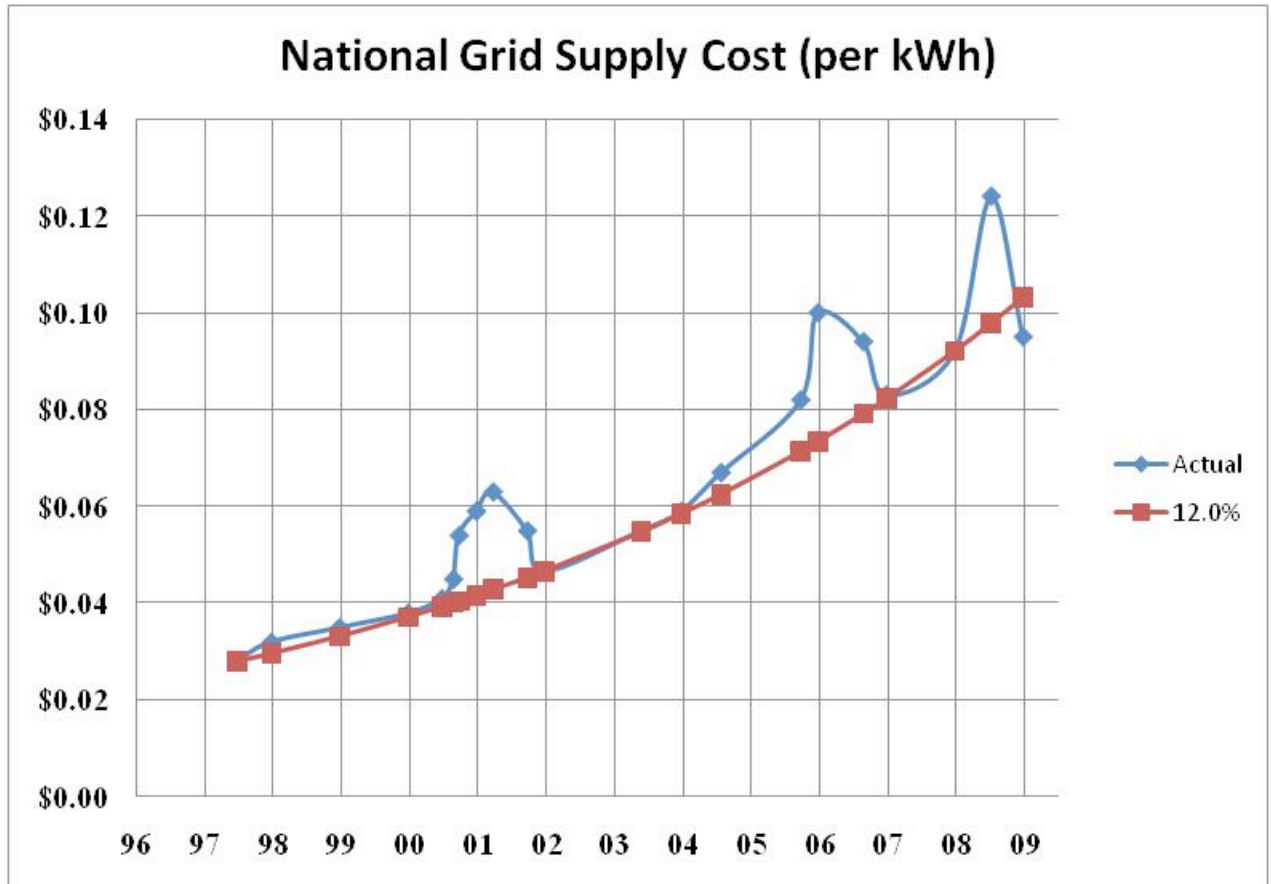
National Grid Rate History

There are substantial differences in the cost of electricity across the nation. According to the US DOE Energy Information Administration, in May 2008, the average electricity rate in Rhode Island (all sectors) was the second highest in the nation. It was twice the national average and nearly four times the rate in the energy producing states. In

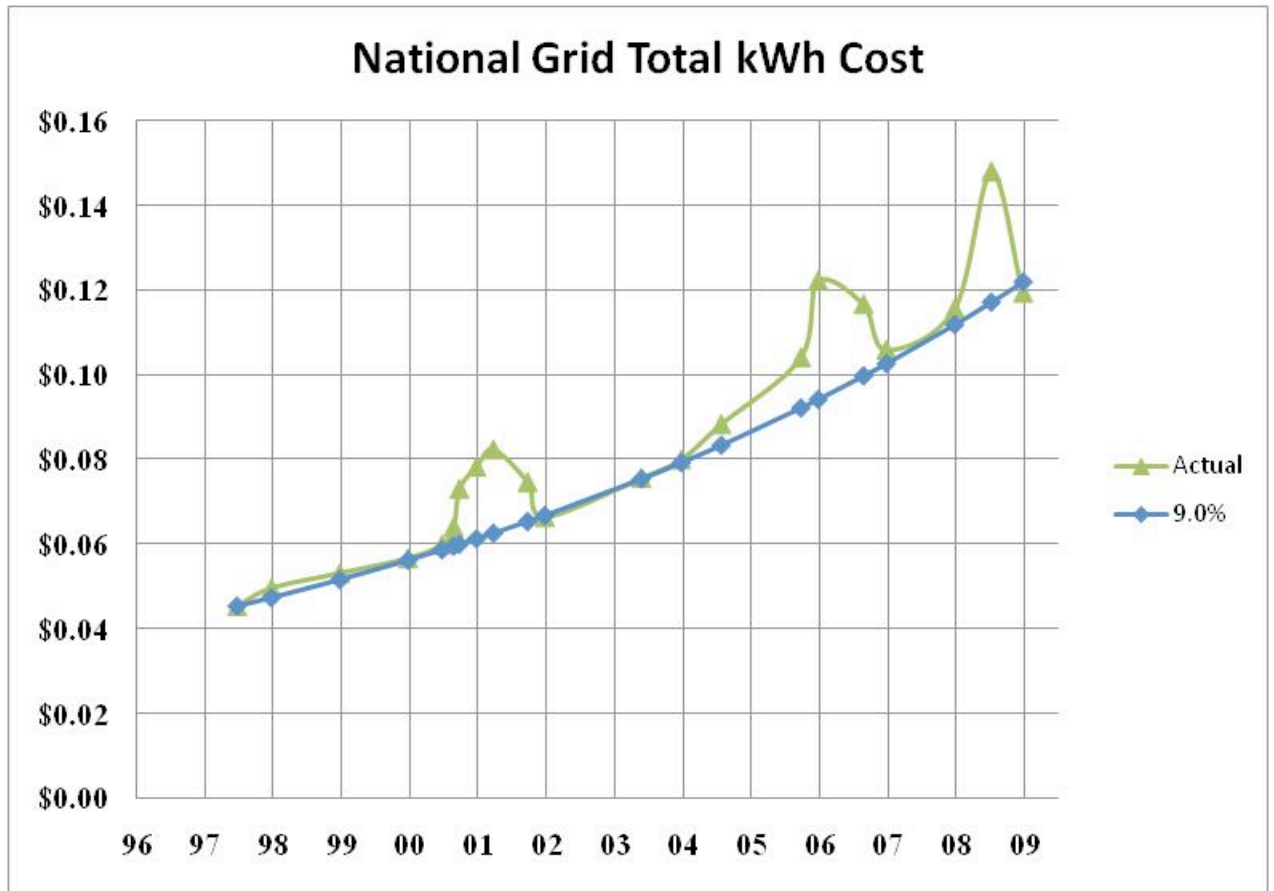
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addition, the rate of increase in Rhode Island has been considerably higher than the national average which grew at about the same rate as inflation.

Below is a plot of the National Grid Standard Offer electric supply rate for the last decade. Note that it has increased at a rate of about 12% per year.



For reference, the total kWh hour charges are also plotted below. It is a plot of the Standard Offer rate above plus the other kWh charges. While the Standard Offer rate grew at a 12 % rate, these other charges grew at a normal rate of inflation. Note that these total kWh charges increased at a rate of about 9% per year.



Nobody knows where the electricity rates are headed in the future, but logic would say that they will at least increase at the rate of inflation and may be as high as 9%.